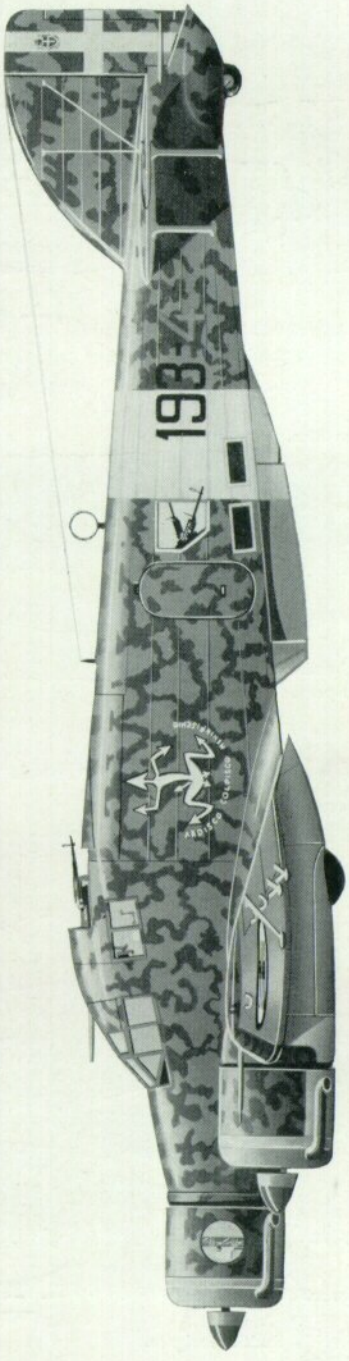
PROFILE
PUBLICATIONS

The Savoia Marchetti S.M.79



NUMBER 89
TWO SHILLINGS

SM 79-I Trainer, Malpensa Bombing Training School.

MAL-31

R.S.I. fuselage and fin insignia.

SM 79-II, *Gruppo Aerosiluranti, Aviazione della R.S.I.*, Northern Italy, Spring 1944.

1-9

SM 79-II Target Tug, C.A.V. Guidonia, Italy, 1951.

Z-3057

R.S.I. wing marking, undersurfaces. Uppersurfaces white.

Iraqi Air Force.

CQ HO

SM 79B, Iraqi Air Force.

SM 79-II seized by Luftwaffe after Armistice and used as transport.

Rumanian Air Force.

EP3710

SM 79-I, 7th Bomber Wing, Yugoslav Air Force, Spring 1941.

SM 79B, Rumanian Air Force, 1938.

3

Yugoslav Air Force.

113

SM 79JR, Rumanian Air Force, 1942.

Lebanese Air Force.

SM 79-II, Lebanese Air Force, 1956.

Rudder insignia.

L-113

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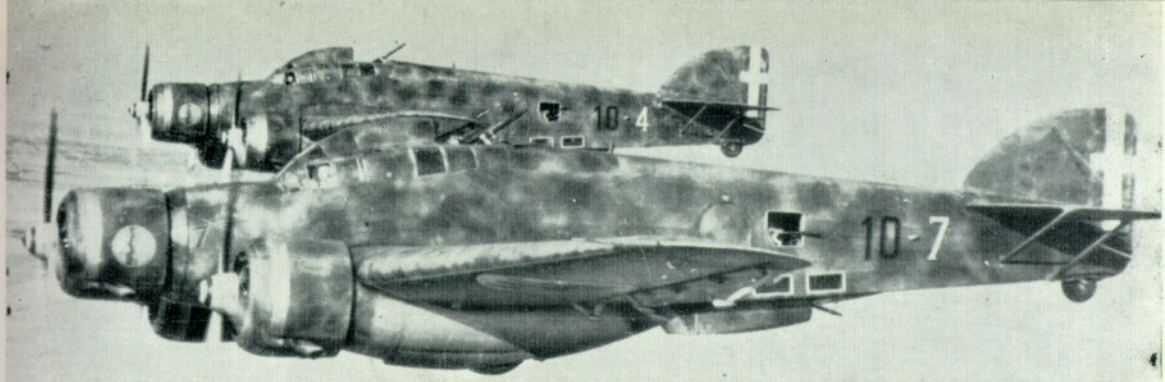


The Savoia Marchetti S.M.79

by Giorgio Apostolo

A pair of S.M.79s of the 10° Squadriglia flying over the Libyan desert. (Photo: R. Ward Collection)

Shortly after sundown in the evening of 15th August 1940 there appeared low over the waters of Alexandria harbour two formations of S.M.79 *Sparviero* torpedo-bombers — their target British warships anchored in the port. No damage, however, resulted from this raid, the torpedoes fouling the shallow mudbanks in the harbour.

Unsuccessful though this attack proved to be, it was significant as being the first action in W.W.II by these Italian torpedo-bombers—extremely efficient aircraft and considered by many as among the most successful land-based torpedo-bombers of the war. To the Italian nation the *Sparviero* was as the Spitfire was to the British, or the Mustang to America. Its name was to become associated with many of Italy's most honoured wartime pilots, Faggioni, Marini, Buscaglia, Di Bella, Cagna, Aramu and Aichner, while the achievements of *Sparviero*-equipped squadrons are almost legendary.

Designed by Alessandro Marchetti and developed from the S.M.81, the S.M.79 began its career in 1934 as an eight-passenger commercial airliner intended for the MacRobertson England–Australia air race. However, the prototype was completed too late to participate, its first flight taking place at Cameri airport (Novara) in October 1934. The three-engine configuration was selected principally for reasons of flight safety—in those years when passengers had not yet learned to complain of vibration from a fuselage-mounted central engine!

As thus stated, the S.M.79 commenced life as a civil aircraft, the full designation being S.M.79P (P for passenger). The first prototype, *I-MAGO*, with exceptionally sleek contours and continuous panoramic windows, was powered by three 610-h.p. Piaggio P.IX *Stella* RC2 nine-cylinder radial engines driving three-blade SIAI Marchetti metal airscrews until it received its Certificate of Airworthiness on 20th July 1935. During the early trials, flown by chief test pilot Com. Bacula, the S.M.79P achieved a maximum speed of 220 m.p.h. at sea level with a normal payload of 2,515 lb., and on 14th June 1935 *I-MAGO* flew from Milan to Rome in 1 hr. 10 min., at an average speed of 254 m.p.h.

Shortly afterwards the engines were replaced by three 750-h.p. Alfa Romeo 125 RC35 (distinguished by larger, smoother cowlings), with a consequent improvement in performance. Within a year of its first flight, on 24th September 1935, with Colonel Biseo at the controls, the S.M.79P established world records for 1,000-km. and 2,000-km. closed circuits with 1,100-, 2,200- and 4,400-lb. payloads at an average speed of 242 m.p.h. (380·952 km./h.).

The limits of the airframe had not however been reached and the following year *I-MAGO* was re-engined with the new 780-h.p. Alfa Romeo 126 RC34, going on to better its own records by achieving an average speed of 260·9 m.p.h. over the 1,000-km. closed circuit with a 4,400-lb. payload.

At this point development of the fast three-engine aircraft took a decisive turn, for the high performance now obtained suggested to the military authorities that a bomber conversion could usefully be achieved. It was averred that the addition of two or three machine guns would render the aircraft virtually invulnerable.

The second prototype was therefore completed as a bomber from the outset, but did not differ materially in structure from its civil predecessor. The central engine posed some problems for forward defence and bomb aiming, and this was overcome by adding a faired ventral nacelle for the bomb-aimer and a gun for undertail defence. A fixed forward-firing gun was also added in a fairing over the pilot's cabin, and in

The S.M.79P prototype after the installation of Alfa Romeo 125 RC 35 engines. (Photo: R. Ward Collection)

A Junkers Jumo-powered S.M.79JR of the Rumanian Air Force; licence production of this variant was carried out by Industria Aeronautica Romana *at their Bucharest plant.* (Photo: R. Ward Collection)

the aft section of this dorsal fairing there was an open position for a flexible gun mounting to cater for upper rear defence. All the guns were the well-known 12·7-mm. Breda-SAFAT weapons, and the dorsal gunner's fairing gave rise to the sobriquet *il Gobbo* (the hunchback), a nickname which persisted even after adoption of the official designation *Sparviero* (Sparrow).

As development of the military aircraft continued as the S.M.79, that of the commercial design emerged as the S.M.83 in 1937.

THE S.M.79 DESCRIBED

The S.M.79 used a conventional structure for its day. The wooden three-spar wing was built as a single unit with only 1° 30′ dihedral, the seventy-two ribs being entirely plywood covered. The whole trailing edge outboard of the engines was hinged, the inboard sections being camber-changing flaps, and the outboard section both as ailerons and flaps. Automatic Handley-Page slots were incorporated in the wing leading edges to enhance low-speed lateral stability.

Ten fuel tanks, together containing 5,622 lb. of fuel, were positioned between the wing spars and two further auxiliary tanks could be installed in the rear of the engine nacelles. All the tanks were interconnected with a central system to transfer fuel between tanks, together with a standby manual pump and jettison system. The oil system consisted of three circuits, each engine being provided with its own hydraulic reservoir.

The spacious fuselage was a welded steel-tube structure; the forward section was duralumin and plywood covered, and the rear fuselage skinned with ply and fabric. Two large emergency exit panels were located in the top of the forward fuselage.

A fireproof bulkhead was located between the fuselage engine and the flight deck which accommodated pilot and co-pilot side-by-side with dual controls, 9·5-mm. armour back plates were provided for these two crew members.

Aft of the pilots, in a separate compartment, were positioned the radio operator (with R.A.30 transmitter, A.R.5 receiver and P.63N radio-compass) and flight engineer with engine instrument panel, fuel system and emergency controls.

The bomb bay was located in the fuselage centre section, aft of which was the bomb-aimer's gondola. This crew member was provided with duplicated rudder controls, basic flight instruments, Jozza bomb-sight, bomb releases and automatic camera. For photographic missions the equipment also included a Robot camera and a second planimetric camera.

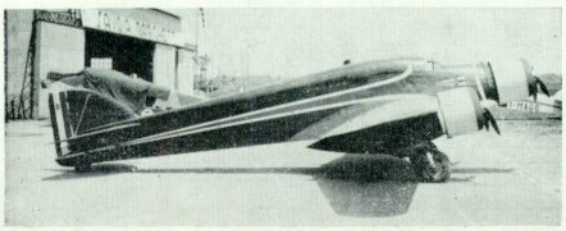
Bomb-load of the S.M.79 amounted to a total of 1,000 kg. (2,200 lb.), comprising two 1,100-lb. bombs. Alternative overloads might, however, consist of five 550-lb. or twelve 220-lb. bombs, all carried vertically due to the confined space within the bomb bay.

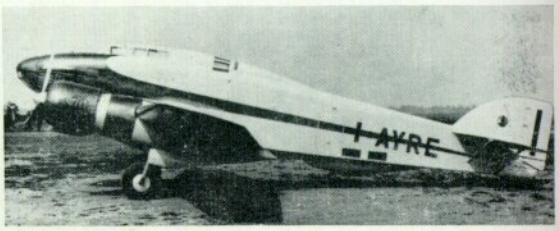
Armament was four machine guns: the forward-firing Breda-SAFAT 12·7-mm. gun with 350 rounds was operated by the pilot. A similar gun on a flexible mounting was located under a sliding panel at the rear of the dorsal fairing with 500 rounds, and a third Breda on a flexible mounting in the rear of the ventral gondola for tail defence. Production aircraft also carried a 7·7-mm. Lewis gun on a sliding mount in the rear fuselage for beam defence on either side.

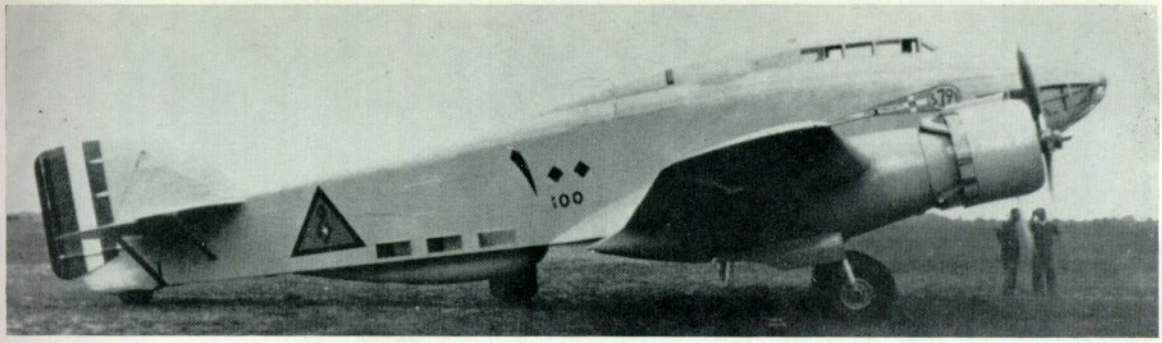
The vertical and horizontal tail surfaces were steel tube structures with fabric covering, the rudder and elevators being aerodynamically and statically balanced.

The engines in the initial production version for the

Left: *One of the five S.M.79C racing machines, which achieved great success in the 1937 Istres–Damascus–Paris race. In the background, the fuselage of the first prototype is just visible under the centre cowling of the S.M.79C.* Right: *An S.M.79B in civil markings.* (Photos: R. Ward Collection)

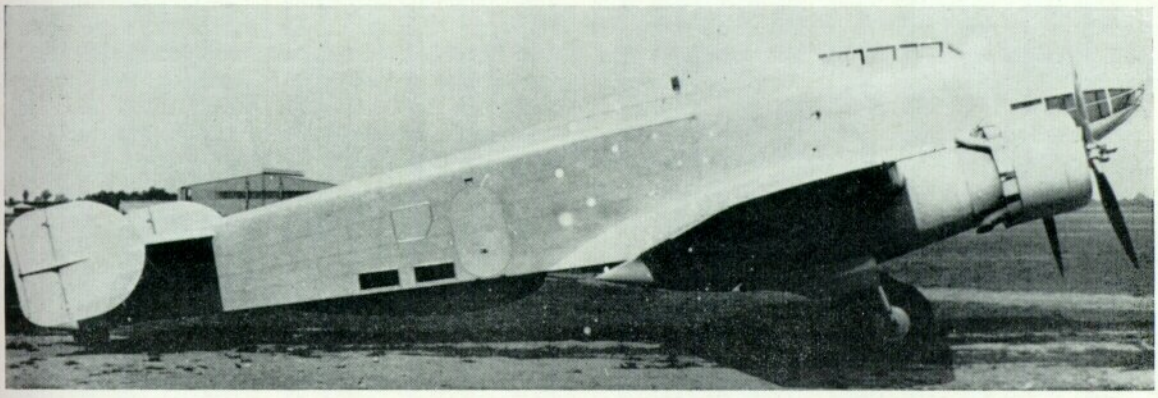






One of four S.M.79Bs acquired for the Iraqi Air Force in 1938; powered by Fiat A.80 engines, these machines were eventually destroyed during the anti-British rising in 1941. (Photo: R. Ward Collection)

An unusual modification of the S.M.79B, featuring twin fin and rudder layout. (Photo: R. Ward Collection)



Regia Aeronautica were three Alfa Romeo 126 RC34 nine-cylinder air-cooled radial engines giving 780 h.p. for take-off and rated at 750 h.p. at 11,150 feet. The wing-mounted engines incorporated drives to the two Marelli GR-800 generators which provided power for the electrical system which also included two batteries.

The main undercarriage retracted into the wing engine nacelles, these N.A.C.A. nacelles being fabricated in three sections of which the forward section constituted the outer surface of the engine exhaust manifold.

Performance of the initial production S.M.79s included a maximum speed of 267 m.p.h. at 13,100 feet, and 224 m.p.h. at sea level. Cruising speed was 228 m.p.h. at 10,000 feet and 233 m.p.h. at 19,700 feet. On the climb, 3,300 feet was reached in 3 min. 28 sec., and 16,400 feet in 19 min. 45 sec. Service ceiling was 21,320 feet. With a 2,755 lb. overload of bombs and cruising at 211 m.p.h. at 16,400 feet, the S.M.79 had a range of 1,180 statute miles, or 2,050 statute miles without bomb load.

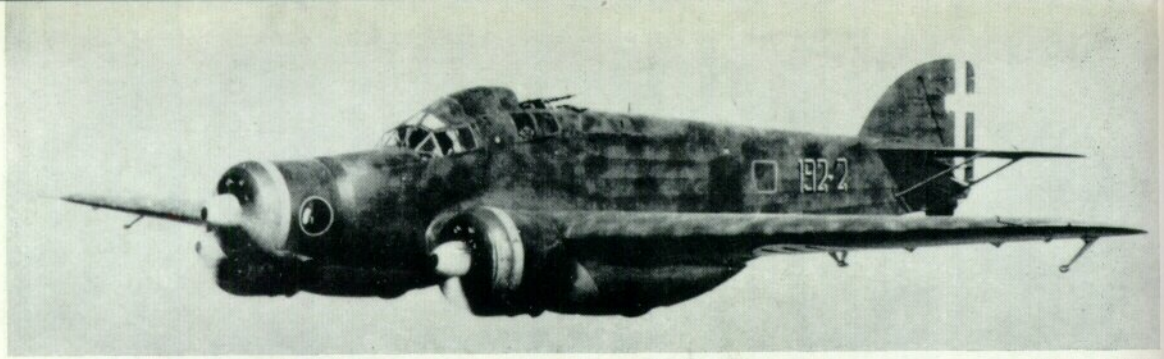
COMMERCIAL EXPLOITS

Apart from the subsequent development of the civil S.M.83, considerable effort was spent on commercial development of the S.M.79 as well.

Two principal commercial variants were evolved, both intended for prestige participation in international flights, the S.M.79C (C for *corsa* or race) and the S.M.79T (T for *Transatlantico*), both without military equipment and ventral gondola. Sixteen such special aircraft were prepared in 1937, the standard Alfa 126 engines being replaced by 1,000-h.p. Piaggio P.XI RC40 fourteen-cylinder radials. Eleven were S.M.79Ts, fitted with increased tankage for transatlantic flights, and the remaining five (S.M.79C) were modified to participate in international air races.

These special variants amassed a fine record of outstanding flights, the best results being the first three positions achieved in the 1937 Istres–Damascus–Paris.

One of the Yugoslavian Air Force S.M.79Is, probably photographed after its transfer to the Croatian Air Force in 1941.
(Photo: R. Ward Collection)



A machine of the 192° Squadriglia in flight; note mass-balance horns and tail bracing. (Photo: A.S.C.)

Originally this race, organised by France, had been intended to include French, American, British and Italian aircraft flying from Paris to New York, but when it was apparent that the American entries would not be ready in time to participate, the course was changed to Istres–Damascus–Paris, a total distance of 3,863 miles with a single stop at Damascus. France started as favourites with four entries, including the Caudron Typhon—specially prepared for the race. Britain entered with a D.H.88 Comet, the pale blue *G-ACSS* "The Orphan", flown by A. E. Clouston and George Nelson. Italy dominated the field with five S.M.79Cs and three Fiat B.R.20s.

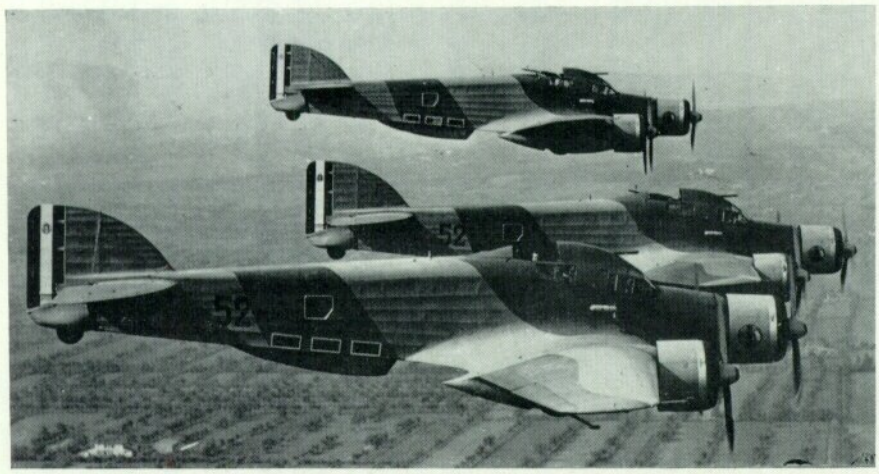
The race proved a walk-over for the S.M.79s, for while the Italian crews covered the first leg to Damascus at about 260 m.p.h., the Comet averaged 217 m.p.h. and the best French aircraft only managed 186 m.p.h. On the return flight, the first S.M.79C (flown by Cupini and Paradisi) won at an average speed of 218 m.p.h. with a total time of 17 hours 35 minutes; second place was taken by the S.M.79C flown by Maggiore Fiori and Ten. Luchini (217 m.p.h., 17 hours 57 minutes), and third by the S.M.79C flown by Col. Biseo, Ten. Col. Mori and Ten. Bruno Mussolini (213 m.p.h., 18 hours 4 minutes). The D.H.88 was fourth.

In November 1937 an S.M.79, flown by Capt. Luchini and Capt. Tivegna, established a new world record over 1,000 km., carrying 1,100-lb. payload at 249 m.p.h.

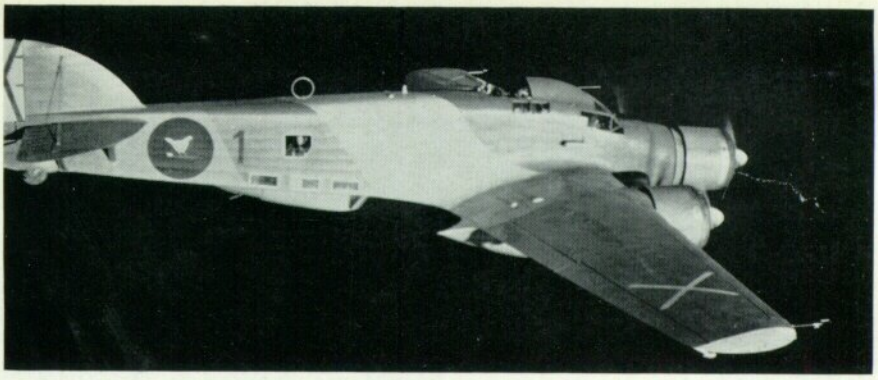
Magnificent confirmation of the S.M.79s distance-flying performance was provided early in 1938 when three aircraft of the 12th Bomber Group, "*Sorci Verdi*" (green mice) made a fast long-distance flight between Rome and Rio de Janeiro. The three aircraft were squadron machines modified to S.M.79T standard by the addition of increased fuel tankage, and were flown by Col. Attilio Biseo and Maj. Amedeo Paradisi (*I-BISE*), Maj. Nino Moscatelli and Capt. Gori-Castellani (*I-MONI*) and Lt. Bruno Mussolini and Lt. Renato Mancinelli (*I-BRUN*). Taking-off from Guidonia on 24th January 1938 and flying *via* Dakar, the leaders covered the entire 6,116 miles at an average speed of 251 m.p.h. in a total flying time of 24 hours 20 minutes. The first leg from Rome to Dakar was flown at an average speed of 266 m.p.h., suggesting a top speed of over 280 m.p.h. Major Moscatelli's aircraft suffered airscrew failure shortly after take-off at Dakar, but continued on two engines to Natal at an average speed of 192 m.p.h. and joined the other two aircraft at Rio on the following day. Bruno Mussolini's aircraft was presented as a gift to the Brazilian Government at the end of the flight.

Throughout 1937 and 1938 S.M.79s undertook numerous other record-breaking flights, gaining no less than twenty-six international records. On 8th July 1937 Biseo and Mussolini, flying a Piaggio P.XI RC40-powered aircraft, established a new record at 262 m.p.h. on the Rome/Fiumicino–Livorno–Orbetello 1,000 km. closed circuit with 1,100-, 2,200- and 4,400-lb. payloads; this performance was then bettered by Bacula and De Ambrosis at 268 m.p.h. and then 273 m.p.h.

Meanwhile Luchini and Tirregna set up a new 1,000 km. record with 5,000-lb. payload at a speed of 249 m.p.h., and another crew, Tisei and Rondi, flew the same distance with a 10,000-lb. payload at 198 m.p.h. Then, covering a 2,000-km. course, Bacula and



A formation of 52° Squadriglia S.M.79s display pre-war Regia Aeronautica *camouflage and markings.*
(Photo: Col. Cesar Milani)



Aviacion del Tercio *S.M.79 over the Spanish coast. This machine displays one of the variations of the "chicken" emblem employed by one of the Italian Legion units.* (Photo: R. Ward Collection)

De Ambrosis achieved 261 m.p.h. with 2,200- and 4,400-lb. payloads.

Most of these records again fell to S.M.79 pilots in 1938 when Tondi averaged 286·4 m.p.h. over 1,000 km. with 1,100- and 2,200-lb. payloads, and Bacula and De Ambrosis managed 273·4 m.p.h. with a 2,200-lb. payload over 2,000 km. Finally Colonel Tondi achieved 287 m.p.h. on the 500 km. and 1,000 km. courses, and 293 m.p.h. with 4,400-lb. payload over 1,000 km.

OPERATIONAL DEBUT OVER SPAIN

While these successful efforts by Italy to gain international prestige in the air were progressing, experience of a more tortuous nature was being gained in the skies over Spain. From the outbreak of the Civil War in July 1936 until the end of hostilities in March 1939, Italy supplied more than 730 aircraft to the *Aviacion del Tercio*, including three bomber types: the S.M.81, the S.M.79 and Fiat B.R.20s.

After the initial supply of S.M.81s at the outbreak of war in 1936, more modern equipment followed in 1937 and provided the *Regia Aeronautica* with operational experience with its latest equipment, including the S.M.79-I. The new bomber had entered service with 8° and 111mo *Stormi Bombardamento Veloce* (fast bomber groups) and these units were sent to Spain where they participated in extensive operations over the Republican lines and contributed materially to the neutralising of the Government fleet in port. Operating as four groups in Spain as the 27th and 28th, named *Falchi delle Baleari* (Hawks of Baleares), and the 29th and 30th *Sparvieri* (Sparrows), the S.M.79-Is with two groups of S.M.81s carried out 5,318 bombing sorties during which they delivered 11,850 tons of bombs and scored 224 hits on Government ships. In particular the *Falchi* (joined for a short time by the 12th *Sorci Verdi* Group), operating from the Balearic Islands, carried out raids against Government shipping refuelling in the Mediterranean ports, often being called upon to make three sorties per day.

The second prototype S.M.79, built from the outset as a bomber, seen here in its military livery. (Photo: via the author)

While the older S.M.81 performed much of the tactical and ground-support commitment, usually with fighter escort or cover, the S.M.79-I really achieved its reputation for long-range strategic raids and patrols without fighter escort.

The first S.M.79s purchased (at a cost of two million pesetas each) by the Nationalists arrived at the beginning of April 1937 at San Juan (Palma, Mallorca) and commenced operations forthwith in the Brunete area under the initial command of Major Aramu, and later under Colonel Cupini. Thence they transferred to Tallada, Seville, and to Soria to take part in operations on the Bilbao front. By the end of the year all four Groups were operational with twenty-five aircraft each, having lost only four aircraft.

During the Civil War several significant operations were undertaken by *Sparvieros*. Following doubts that the S.M.79 was suitable for night operations, the Chief of Staff, Generale Valle, carried out a night raid over Barcelona on 1st January 1938, flying 124 miles to deliver 1,763 lb. of bombs without difficulty to

(continued on page 10)

Compare the camouflage of this Aviacion del Tercio *machine with that displayed in the photograph at the head of this page. This aircraft served with the 28°* Gruppo *"Hawks of the Balearics", a unit which saw considerable service over Spain's eastern seaboard and contributed materially to the neutralisation of the Republican fleet.* (Photo: Dolling via Seeley)

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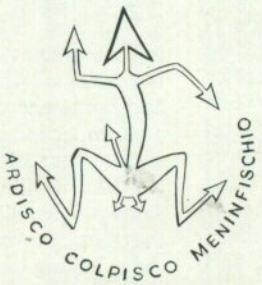
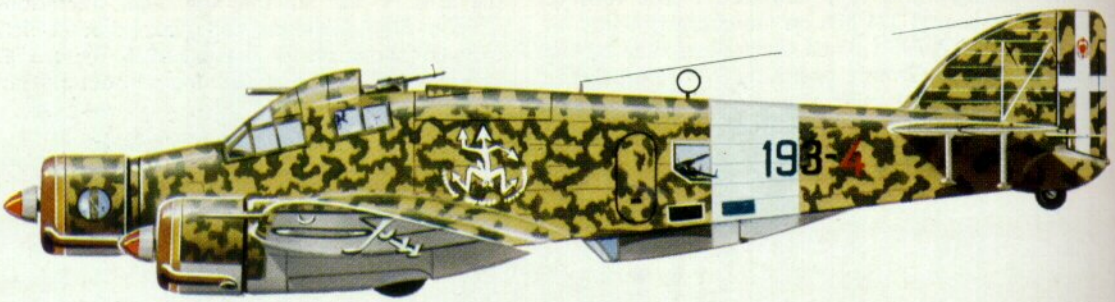
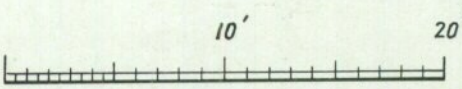
Fasces Insignia.



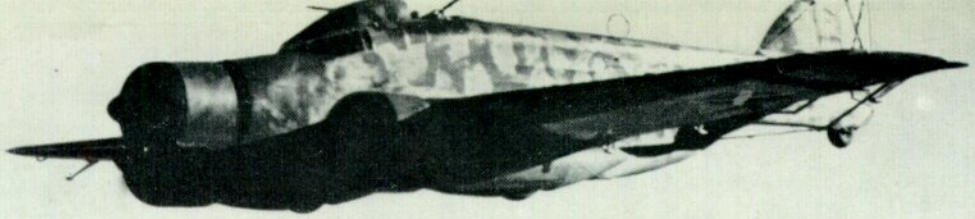
"Electric Man"
Emblem.





SAVOIA-MARCHETTI S.M. 79II "Sparviero" of 193 Squadriglia, B.T., Sicily, Spring, 1941.

(It will be noted that for the sake of clarity the single 7·7 mm. Lewis gun in the waist position has been shown at both port and starboard extremities of the mounting rail.)



Another view of an Italian Legion Sparviero *over Spain. The Republican air arm was inferior in numbers and equipment to the "volunteer" units of the Nationalist force, and German and Italian bombers operated with little fear of successful interception.*
(Photo: Col. Cesar Milani)

dispel such doubts. Exactly one month later a single S.M.79 destroyed the important power station at Seira. On the other hand, a more humane operation was the air supply of 66,000 lb. of bread delivered by S.M.79s to the starving populations of Madrid and Barcelona at the beginning of October 1938.

After the end of hostilities in March 1939, the Spanish Government took over eighty S.M.79s, including those that had been flown by the *Aviación Legionaria*, and these aircraft formed the bulk of the modern Spanish Air Force for many years to come, some aircraft surviving until relatively recent times.

TWO ENGINES

As already remarked, the choice of the three-engine configuration was the outcome of commercial safety considerations, sentiments agreed by the *Regia Aeronautica* who foresaw an increased likelihood of safe return to base from bombing missions with one engine shot up. At the speeds expected from the S.M.79, however, frontal attacks by fighters were discounted by the *Regia Aeronautica*, and the fixed forward-firing gun was considered adequate defence.

Notwithstanding these arguments, most other air-forces of the world still considered nose armament essential and almost universally accepted the conventional twin engine layout. To recognise these potential requirements, Savoia Marchetti therefore pursued the design of the twin-engine S.M.79B.

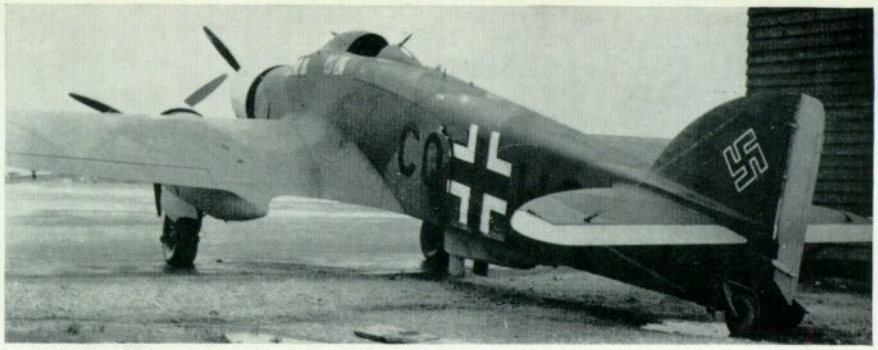
The S.M.79B differed from the standard aircraft in having an entirely redesigned nose, accommodating the bomb aimer and a single movable 12·7-mm. Breda-SAFAT machine gun. By lengthening the "hunch-back", the single pilot now sat higher and farther forward.

The prototype S.M.79B, originally powered by two 1,030-h.p. FIAT A.80 RC41 18-cylinder two-row radial engines, first appeared in 1936 and attained a speed of 255 m.p.h. at 15,000 feet and 225 m.p.h. at sea level. It was extensively demonstrated to foreign air forces, including those of Argentina, Belgium, Brazil, China, Czechoslovakia, Finland, Iraq, Rumania, Russia, Spain, Turkey and Yugoslavia. It was during participation in a competition held in Argentina to decide on future medium bomber equipment for that country that the S.M.79B's manœuvrability was questioned. The Italian demonstration pilot promptly took off, executed four loops and won the contest! Strategic considerations, however, superseded the result and doubts that spares would be forthcoming in the event of a European war led to an order for thirty-five Martin 139-W bombers being placed.

The same year, Iraq ordered four S.M.79Bs to be delivered in 1938, these aircraft being powered by 1,000-h.p. FIAT A.80 engines. All were finally destroyed during the anti-British insurgency in Iraq

Two Sparvieri *seen from below display their distinctive tail contours and the black-on-white underwing* fasces *marking.*
(Photo: R. Ward Collection)

Sparvieri *of the 254° Squadriglia, with 78° Squadriglia C.T. Fiat C.R.42s in close escort formation, possibly photographed during operations over French airfields in Tunisia in mid-June 1940.*
(Photo: via the author)



Rare photograph of an S.M.79 taken over by the Luftwaffe. *Although the aircraft was undoubtedly used for second-line duties, it will be observed that the armament is still mounted.*
(Photo: via R. C. Seeley)

during 1941. Brazil took delivery of three S.M. 79Bs powered by 930-h.p. Alfa Romeo 128 RC18 radial engines.

Perhaps the most widespread use of the S.M.79B was with the Rumanian Air Force. Twenty-four aircraft were purchased in 1938 powered by 1,000-h.p. Gnôme–Rhône K.14 Mistral-Major engines, but so successful did these prove that, with the expansion of that air force in hand, a further twenty-four aircraft were acquired. This latter batch was powered by 1,220-h.p. Junkers Jumo 211Da 12-cylinder liquid-cooled in-line engines. At the same time a licence to build this version, designated S.M.79-JR, was acquired for the *Industria Aeronautica Romana* works at Bucharest. Performance of the JR-version included a maximum speed of 276 m.p.h. at 16,400 feet (compared with 255 m.p.h. at 15,100 feet on the Fiat A.80-powered version). Climb to 10,000 feet occupied 8 min. 40 sec., and the service ceiling was 24,260 feet. Weight empty was 15,860 lb., loaded 23,790 lb. These aircraft were extensively flown on operations by Rumanian forces on the Russian front, while the earlier S.M.79Bs were relegated to transport duties.

While on the subject of exported S.M.79s, it should be recorded here that Yugoslavia preferred the three-engined design, acquiring forty-five standard S.M.79-I tri-motor bombers. These equipped the 7th Bombing Wing and the 81st Independent Bombing Group but most were destroyed in the 1941 hostilities with Germany and Italy, the few survivors being transferred to the Croatian Air Force.

WORLD WAR II

Having demonstrated considerable success with the *Aviación Legionaria*, the *Sparviero* assumed first-line status with the *Regia Aeronautica* bomber squadrons. The CRDA Cant Z.1007 was as yet still under development and the Fiat B.R.20 was approaching obsolescence. Furthermore trials had been commenced at Gorizia in 1937 to demonstrate the S.M.79's ability to launch torpedoes. A special rack, offset from the aircraft centreline, was fitted to carry a 450-mm. naval torpedo with 375-lb. warhead—aimed by a newly developed launching sight. It is worth mentioning here that Italy led the world in air-launched torpedo fusing, so much so that the *Luftwaffe* later came to adopt Italian torpedoes. When ultimately German torpedo-bomber units (equipped with He 111s) underwent attack training at the school established at Grosseto, many of the techniques used had been evolved by the *Aerosiluranti*.

Following very successful trials with the single torpedo installation, it was decided in March 1938 to

Experimental installation of two torpedoes; trials at Gorizia in the spring of 1938 proved that the dual installation caused a marked deterioration in the Sparviero's *performance.*
(Photo: R. Ward Collection)

institute a new programme with dual torpedo installation at Gorizia, the trials commencing in August that year. Due to the marked depreciation in performance with two torpedoes, it was decided to fit more powerful engines first applying the 860-h.p. Alfa Romeo 128 RC18 (this became the prototype of the S.M.84 bomber and was experimentally fitted with twin fins and rudders), and then the 1,000-h.p. Piaggio P.XI RC40. The latter formed the basis of the production S.M.79-II which entered series manufacture in October 1939, built under licence by Aeronautica Macchi and Officine Meccaniche Reggiane and with a few components supplied by Aeronautica Umbra and Aeronautica Sannita. Most aircraft were powered by the Piaggio engines but a few had 1,350-h.p. Alfa Romeo 135 RC32 18-cylinder engines and, later, 1,000-h.p. Fiat A.80 RC41 radials.

Two types of torpedo were employed, one with a 375-lb. warhead, produced by Silurificio Whitehead of Fiume, and the other a 352-lb. head by Silurificio Italiano of Naples. Both were of 450-mm. calibre and were normally launched from a height of about 320 feet at 185 m.p.h. Later, in December 1941, a 440-lb. warhead was adopted as standard and came to be supplied to the *Luftwaffe* as well.

By 1939 eleven *Stormi*, each comprising four *Squadriglie*, deployed a total of 389 aircraft, based in Italy, Albania and the Aegean Islands. When Italy entered the war on 10th June 1940 the number of *Stormi* had increased to fourteen, established with 594 S.M.79s, of which 403 were combat ready. Thus the

Sparviero equipped almost two-thirds of the *Regia Aeronautica* which fielded a first-line strength of 975 aircraft. On that 10th June the *Sparviero* units were deployed as follows:

8° *Stormo* B.T.	Villacidro, Sardinia.
9° *Stormo*	Viterbo, Italy.
10° *Stormo*	Benina, Libya.
11° *Stormo*	Comiso, Sicily.
12° *Stormo*	Ciampino and Orvieto, Italy.
14° *Stormo*	El Adem, Libya.
15° *Stormo*	Castel Benito, Libya.
30° *Stormo*	Sciacca, Sicily.
32° *Stormo*	Decimomannu, Sardinia.
33° *Stormo*	Bir el Bhera, Libya.
34° *Stormo*	Catania, Sicily.
36° *Stormo*	Castelvetrano, Sicily.
41° *Stormo*	Gela, Sicily.
46° *Stormo*	Pisa, Italy.

First action by S.M.79 bombers in W.W.II—during the short-lived campaign against France—was an attack by nine S.M.79s of the 9° *Stormo* and ten of the 46° on 13th–14th June 1940 against French ships off the Riviera coast. *Sparvieri* of the 3rd Division of *III Squadra* in central Italy operated against France and Corsica, those of *Aeronautica della Sardegna* over Corsica, Algeria and Tunisia, and those of *II Squadra* (i.e. 3rd Division, 11°, 34° and 41° *Stormi*, and 11th Brigade, 30° and 36° *Stormi*), over Algeria and Tunisia. The *Sparvieri* of *Aeronautica della Libia*—amounting to a total of 103 aircraft—were active only over Tunisia, and involved aircraft of 10° and 33° *Stormi* and some from 15° *Stormo*.

When war broke out against Greece on 28th October 1940, Albanian-based S.M.79s—104° and 105° *Gruppi* with two squadrons each—were joined by S.M.79s of 92° *Gruppo* and 281° *Squadriglia* of the *Aerosiluranti* based on the Aegean Islands. Throughout this campaign, which lasted until 22nd April 1941, these Italian bomber groups were engaged in particularly intense operations with precious little respite.

Fought simultaneously with the campaign in Greece, operations against Yugoslavia (6th April until 17th April) involved a total of thirty S.M.79s from the Albanian groups, while the Yugoslavs themselves operated an initial total of forty-two similar machines.

Although the airborne invasion of Crete (20th–31st May 1941) was undertaken principally by *Luftwaffe* units, S.M.79s of the Aegean *Aerosiluranti* joined in with attacks against Allied shipping. These comprised the 92° *Gruppo*, which had been based at Gadurrà since before the outbreak of war, and the 281° *Squadriglia*, which had arrived at Rodi from Italy on 20th March 1941.

An S.M.79II in its classic rôle—low-level torpedo attack. The Italian Aerosiluranti *or torpedo-bombing units led the world in equipment and technique.* (Photo: R. Ward Collection)

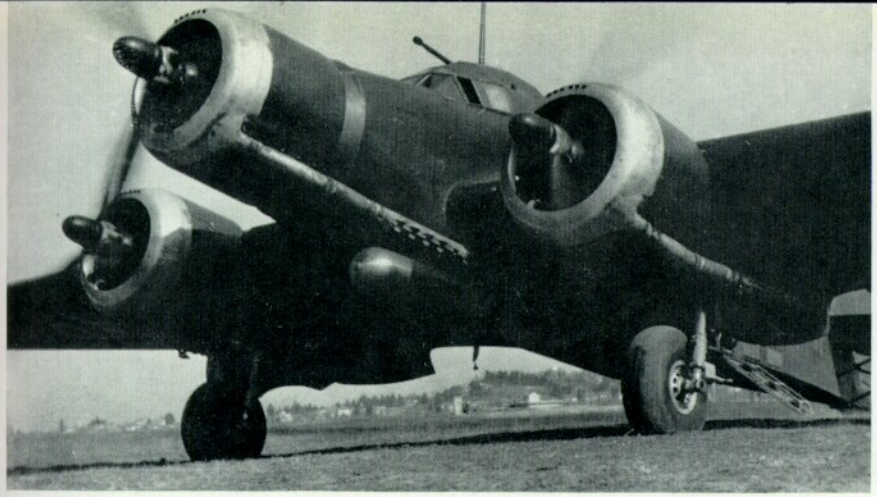
In the early weeks of the North African campaign four *Stormi*, with a total of 125 aircraft, were deployed in Libya; these included the 15° *Stormo* with thirty-five *Sparvieri* and eight S.M.81s at Castel Benito, and 33° *Stormo* at Bir el Bhera with thirty-one *Sparvieri*. Facing Egypt were the 10° *Stormo* with thirty S.M.79s at Benina, and 14° *Stormo* with twelve S.M.79s and nine S.M.81s at El Adem. From the outset these units operated against enemy targets at Mersa Matruh, Halfaya, Sollum and Sidi Barrani. They were joined during the first Italian offensive by *Sparvieri* of the 27° *Gruppo*. Such was the rate of attrition during those early months that by the end of the second British offensive the total Italian strength in this theatre remained at only 125 aircraft.

Use of the S.M.79 in East Africa was interesting in that this aircraft probably represented the most modern aircraft in the theatre on either side. On the Italian side, the bomber strength consisted of eighty-four obsolete Caproni 133s, forty-two S.M.81s and twelve S.M.79s—opposing a sizable but utterly heterogeneous hotch-potch of Bombays, Valentias, Wellesleys, Vincents, Battles, Hart Variants and Londons. However, such was the importance attached to the S.M.79 that reinforcement of the East African front was undertaken by air direct from Italy—with a single refuelling stop at Cupra oasis in Libya. For the operations against British Somaliland in August 1940 the Italian forces were supported by eighty-five aircraft, including eleven S.M.79s of the 44° *Gruppo* based at Addis Ababa.*

Reinforcements reached the Italian forces in East Africa from time to time, so that by the time of the British offensive in January 1941 five *Squadriglie*, with a total of twenty-eight S.M.79s, were available for operations.

**Records of No. 223 (Bomber) Squadron, R.A.F., indicate that during the morning of 18th August 1940 five Wellesleys of that squadron attacked Addis Ababa, destroying or seriously damaging four S.M.79s.*

Transport version of the Sparviero *operated by the Co-Belligerent Air Force after the 1943 Armistice.* (Photo: R. Ward Collection)



The single off-set torpedo installation more usually carried by the Aerosiluranti, *seen here on an S.M.79III. Note absence of ventral gondola, lengthened airscrew hubs, extended exhaust manifolds, and the forward-firing 20-mm. cannon above the cockpit. Produced in small numbers only, the S.M. 79III was operated in the Mediterranean by Capt. Faggioni's torpedo - bombing Group.* (Photo: via the author)

MARITIME OPERATIONS AND THE MEDITERRANEAN

The *Sparviero* did not take part in the operations of the *Corpo Aero Italiano* in Northern Europe against England, and was used only on a limited scale on the Balkan fronts. It was in the Mediterranean theatre itself that the S.M.79's major rôle lay, and for three years achieved outstanding success in operations against merchant convoys, naval vessels of all sizes and the island fortress of Malta. Among the Allied destroyers sunk by *Sparvieri* were H.M.S. *Husky*, *Jaguar*, *Kujavik II*, *Legion* and *Southwall*, and considerable damage was caused to the battleship *Malaya*, and the aircraft carriers *Indomitable*, *Victorious* and *Eagle*.*

The original operations against Malta and Allied shipping in the Sicilian Channel were carried out by S.M.79s of the 30° *Stormo* and 279° *Squadriglia*, later supplemented by units of the *Luftwaffe's X Fliegerkorps*, the 10° *Stormo* with S.M.79s and the 9° *Stormo* with Cant Z.1007-IIs. At the end of 1941 *Fliegerkorps II* was also transferred to Sicily from the Russian front, by which time fourteen Allied ships had been sunk by air attack, and at least sixty others damaged.

On the North African mainland, the first torpedo-bomber group formed was the 131° *Stormo Autonomo*, established on 25th March 1942 with the 279° *Squadriglia* (which had moved from Catania to the Aegean and now to Benghazi) and 284° *Squadriglia*, which had arrived in North Africa direct from Italy and remained until disbanded in November 1942. The next unit formed, the 133° *Stormo Autonomo*, in April 1942, included the 174° *Squadriglia* (at Benghazi) and 175° at Castel Benito. During the campaign which led up to the Battle of El Alamein, the Italian air force units supporting the Axis advance operated a total of thirty-four *Sparvieri* and twenty-five Cant Z.1007s, together with several groups of Fiat CR.42s, Macchi M.C.200 and 202s. During the subsequent retreat all these units were withdrawn through Derna, Benghazi and Misurata, so that eventually only one *Squadriglia* of *Sparvieri* was left in North Africa—this a special unit, *Aviazione Sahariana*, at Hun in Central Tripolitania.

Undoubtedly the most interesting chapters in the life of the *Sparviero* were those of the great naval operations involving the British attempts to pass convoys to Malta. In the last and most famous sailing —Operation "Pedestal"—fourteen vital merchant ships sailed under a heavy naval escort which included battleships, cruisers, destroyers and the aircraft carriers *Victorious*, *Indomitable* and *Eagle*. Against this convoy, which left Gibraltar on 10th August 1942, were ranged seventy-four *Sparvieri* (sixty belonging to 32° *Stormo*, which had been moved from Gioia del Colle to Villacidro, Sardinia, and 105° from Pisa to Decimomannu, Sardinia, plus fourteen S.M.79s of the 132° which had moved from Gerbini to the island of Pantelleria). In the face of these and other heavy forces which gave the convoy no moment of respite, the British ships managed to reach Malta—albeit at a cost of nine merchantmen, a carrier, two cruisers, a destroyer and eighteen defending aircraft.

During this phase of the war the most outstanding unit was unquestionably the 132° *Gruppo*, commanded by Captain Buscaglia, with two *Squadriglie*, the 278° at Castelvetrano and 281° at Gerbini, both in Sicily. Between June and August 1942 numerous daylight missions were flown against British vessels, resulting in direct hits being scored on the carrier H.M.S. *Argus*, the battleship H.M.S. *Malaya* and several other heavy ships. With this unit also operated the 130° *Gruppo* (280° and 283° *Squadriglie*), whose pilots included such famous names as Melley, Cimicchi and Di Bella.

As the naval struggle entered its final phase in the Mediterranean in November 1942, the *Regia Aeronautica* could muster 112 *Sparvieri* serviceable out of an established strength of 163. These aircraft were deployed as follows:

Formations	*Established Aircraft*	*Serviceable Aircraft*
2 Torpedo-Bomber Groups (Sardinia)	30	18
1 Torpedo-Bomber Group (Sicily)	18	16
1 Bomber Recce. Group (Sicily)	28	16
2 Torpedo-Bomber Groups (N. Africa)	39	28

*Though earlier accounts seem to suggest that H.M.S. Eagle succumbed to air attacks by S.M.79s, recent data collation indicates that the ship was in fact sunk by a German submarine.

Torpedo-armed S.M.79III of the R.S.I. Air Force, the Fascist element who continued operations against the Allies after the Armistice. Just visible under the nose of the machine in the foreground is the distinctive fuselage insignia of the R.S.I. on the second aircraft. (Photo: via the author)

Formations	*Established Aircraft*	*Serviceable Aircraft*
1 Torpedo-Bomber Group (Aegean Islands)	11	9
1 Torpedo-Bomber Group (N. Italy)	16	9
2 Bomber and Torpedo-Bomber Groups (Central Italy)	21	16

It can be seen from these figures that most emphasis was being placed upon torpedo-bombers, as the air/sea battles had confirmed that better results resulted from air-launched torpedo and dive-bombing attacks than from level bombing. Though new aircraft *were* being developed to replace the S.M.79, they were not ready before the end of the war and, in order to increase the effectiveness of the S.M.79, great efforts were made to boost the supply of improved torpedoes. Up-rating of the Alfa 128 engines was effected at the end of 1941, and a system of ethyl injection was introduced to provide 30 m.p.h. extra in speed for short bursts. As their lives lengthened, and as the number of overhauls and repairs mounted, so the S.M.79s came to be regarded as less important in the first-line strength of the *Regia Aeronautica*. Between the closing months of 1942 and mid-1943 the lack of spare parts seriously reduced the number of serviceable S.M.79s in almost all areas, a state of affairs graphically demonstrated by the Order of Battle on the eve of the Allied invasion of Sicily, 10th July 1943:

Unit	*Location*	*Established Aircraft*	*Serviceable Aircraft*
132° *Gruppo* (Torpedo-Bomber)	Gorizia	5	Nil
Raggruppamento Siluranti	Pisa and Siena	44	15
130° *Gruppo*	Littoria	9	2
205° *Squadriglia*	Milis, Sardinia	4	4
279° *Squadriglia*	Gerbini, Sicily	4	1
104° *Gruppo*	Aegean Islands	11	5

Nevertheless operations by S.M.79s continued almost up to the end of the war in Italy. When, on 8th September 1943, Italy capitulated, most of the available *Sparvieri* were concentrated in the metropolitan area, sixty-one aircraft being on the strength of the 3° *Squadra Aerea*, the thirty-six serviceable aircraft deployed on airfields at Siena, Pisa, Littoria and Capodichino. From this force, twenty-two S.M.79s—mostly from the 41°, 104°, 131° and 132° *Gruppi*—reached the Allied lines to form part of the Italian Co-Belligerent Air Force, serving as bombers, torpedo-bombers and transports. However, only four of the twenty-two were in fact combat serviceable and the 41° *Gruppo*, with 204° and 205° *Squadriglie*, was re-formed at Milis in Sardinia, and the 132° *Gruppo Autonomo*, with 246°, 253° and 281° *Squadriglie*, was re-formed at Leece, near Brindisi.

Some Italian crews and aircraft were, however, unable to join the Allies, being deployed well within the area occupied by German forces. When a new Italian air force, that of the Repubblica Sociale Italiana, was formed, a new variant of the *Sparviero* was introduced into service, and the older aircraft were modified up to the new standard.

Above: *A formation of S.M.79Is of the Italian Legion silhouetted against the evening sky over Spain.* (Photo: Col. Cesar Milani.) Below: *A* Sparviero *of the* Regia Aeronautica *running up. Note intricate detail of nose* fasces. (Photo: via the author)

S.79
SAVOIA MARCHETTI
SM 79P Prototype with Piaggio Stella engines.
Savoia Marchetti emblem.
I-MAGO
"Sorci Verdi" insignia (Green Mice).
I-13
I-BRUN
SM 79C used on transatlantic flight from Rome to Rio de Janeiro, January 1938.
SM 79-I, XXVII Gruppo B.T., Aviacion del Tercio, Spanish Civil War 1938.
I-BRUN was commanded by Bruno Mussolini.
SM 79-I, 28° Sq. B.T., Aviacion del Tercio, Spanish Civil War 1938.
Sq. insignia, Aviacion del Tercio.
Aviacion del Tercio wing marking, undersurfaces; uppersurfaces white cross only.
28-19
SM 79-II, 200° Sq. B.T., 42° Gruppo, 12° Stormo B.T., Sicily, January 1941.
Sq. insignia, Aviacion del Tercio.
200
Coat of Arms of the House of Savoia, rudder insignia.
59-5
SM 79-II, 59° Sq. B.T., 33° Gruppo, 11° Stormo B.T., Z1 Landing Ground, Western Desert, Libya, November 1940.
Fuselage fasces.
SM 79-II, 278° Sq. A.S., 132° Gruppo Autonomo A.S. (Aerosiluranti), Sicily, Spring 1942.
278-2
6
SM 79-II, 6° Sq. B.T., Addis Ababa, Abyssinia, 1940–41.
Non-standard black wing marking, undersurfaces only.
2
SM 79-II, Co-belligerent Italian Air Force, Southern Italy, December 1943.
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Post-war Italian Air Force S.M.79. (Photo: via R. C. Seeley)

The new version, the S.M.79-III (sometimes referred to as the S.579), was produced in relatively small numbers in northern Italy, and was in effect a generally cleaned-up modernisation of the familiar *Sparviero*. The ventral gondola was removed, improved airscrews with lengthened hub cylinders were fitted, the exhaust manifold pipes were extended, new and improved radio was installed, and the forward-firing machine gun was replaced by a 20-mm. cannon.

Equipping a *Gruppo Aerosiluranti* led by Captain Faggioni, these S.M.79-IIIs carried out widespread attacks against Allied shipping in the Mediterranean. Captain Faggioni met his death, however, in a shipping strike at Nettuno, after which the group was led by Major Marini. Perhaps this officer's most outstanding attack was the night raid on Gibraltar on 4th–5th June 1944.

The *Sparviero* had, in its time, been employed in a number of rôles. It was used for strategic reconnaissance and, towards the end of the fighting in North Africa, for close support duties; but undoubtedly one of its most bizarre tasks was that of emulating a radio-guided bomb!

After the British capital ships had turned back after escorting the "Pedestal" convoy towards Malta, they hove to off the Algerian coast and at once became the target for this singular S.M.79. Devised by Generale Ferdinando Raffaelli, this aircraft was filled with explosive and piloted off the ground by a pilot who subsequently baled out as soon as the *Sparviero* had assumed its pre-determined course. An attendant aircraft, a Cant Z.1007-II, then assumed control and guided it towards the British fleet by radio. Although a fault developed in the radio, which caused the S.M.79 to crash on the slopes of Mount Klenchela on the Algerian mainland, Generale Raffaelli was encouraged to develop a cheap, expendable guided flying bomb, a project that resulted in the manufacture of the A.R., a simple wooden monoplane powered by a 1,000-h.p. Fiat A.80 radial, built by Aeronautica Ambrosini and flight-tested in June 1943.

After the end of the war in Europe, all the remaining S.M.79s were transferred to the transport rôle, being taken on by the *Corrieri Aerei Militari*, pending the resumption of regular commercial services. Thereafter a few survivors were employed for communications, training and target drone duties until 1952. Three S.M.79s were sold to the Lebanon in 1950 and, registered *L-111*, *L-112* and *L-113*, were still in regular use by the Lebanese Air Force as transports in 1959.

A total of 1,330 *Sparvieri* was built between 1934 and 1944, perhaps small by comparison with Allied production figures, yet these aircraft nevertheless represented almost twenty per cent of the total Italian production effort of this period. It won unstinted praise from its crews for its excellent handling qualities and—perhaps of more significance—achieved undenied respect from its adversaries.

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SPECIFICATION

(Data from Technical Manual C.A.289 of the Ministero dell 'Aeronautica, issued 1940, applicable to production series 15 aircraft in the serial blocks MM22546–MM22565, and MM23838–MM23877.)

Powerplant: Three Alfa Romeo 126 RC 34, double row, nine-cylinder engines rated at 750 h.p. at 2,300 r.p.m. at 11,000 ft. Three-blade constant speed Savoia Marchetti propellers.

Dimensions: Wing span 69 ft. 6 in.; length 53 ft. 1¾ in.; height 13 ft. 5½ in.; wing area 656·6 sq. ft.

Weights: Empty, 15,310 lb.; loaded, 23,643 lb.; normal useful load, 8,333 lb. Wing loading, 4·29 lb./sq. ft.; power loading, 9·85 kg./h.p.; specific power, 36·5.

Performance:

Max. speed at:	Sea level = 223 m.p.h. at 2,060 r.p.m.
	3,280 ft. = 227 m.p.h. at 2,100 r.p.m.
	6,560 ft. = 238 m.p.h. at 2,170 r.p.m.
	9,840 ft. = 251 m.p.h. at 2,260 r.p.m.
	13,120 ft. = 267 m.p.h. at 2,395 r.p.m.
	16,400 ft. = 261 m.p.h. at 2,320 r.p.m.
	19,680 ft. = 252 m.p.h. at 2,240 r.p.m.
Cruising speed at:	9,840 ft. = 227 m.p.h. at 2,070 r.p.m.
	13,120 ft. = 230 m.p.h. at 2,070 r.p.m.
	16,400 ft. = 231 m.p.h. at 2,070 r.p.m.
	19,680 ft. = 232 m.p.h. at 2,070 r.p.m.
Climb to:	3,280 ft. = 3 min. 8 sec.
	6,560 ft. = 5 min. 58 sec.
	9,840 ft. = 9 min. 15 sec.
	13,120 ft. = 13 min. 15 sec.
	16,400 ft. = 19 min. 45 sec.
	18,045 ft. = 24 min. 21 sec.

Service ceiling, 21,325 ft.; maximum range at 16,400 ft., and 211 m.p.h., 2,050 miles; stalling speed, 80 m.p.h.; take-off run, 897 ft.; landing run, with brakes, 1,148 ft.; landing run, without brakes, 1,640 ft.

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